



17-Apr-2014

Lisa Graczyk  
Weston Solutions, Inc  
20 North Wacker Drive  
Suite 1210  
Chicago, IL 60606

Re: **Whiting Crude Release**

Work Order: **1404532**

Dear Lisa,

ALS Environmental received 1 sample on 09-Apr-2014 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 12.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Beamish".

Electronically approved by: Tom Beamish

Tom Beamish  
Senior Project Manager



Certificate No: MN 532786

## Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

**Client:** Weston Solutions, Inc  
**Project:** Whiting Crude Release  
**Work Order:** 1404532

**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1404532-01	WCR-Soil01-040814	Soil		04/08/14 11:10	04/09/14 09:30	<input type="checkbox"/>

**Client:** Weston Solutions, Inc  
**Project:** Whiting Crude Release  
**WorkOrder:** 1404532

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
lbs/ft3	Pounds per Cubic Foot
mg/Kg-dry	Milligrams per Kilogram Dry Weight

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**Client:** Weston Solutions, Inc  
**Project:** Whiting Crude Release  
**Work Order:** 1404532

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**Case Narrative****QC Comments:**

Batch 57444, Method DRO\_8015C\_S, Sample 1404532-01A MS: The matrix spike recovery was outside of the control limit. However, the matrix spike duplicate recovery and the RPD between the MS and MSD were in control. No qualification is required.

# ALS Group USA, Corp

Date: 17-Apr-14

**Client:** Weston Solutions, Inc  
**Project:** Whiting Crude Release  
**Sample ID:** WCR-Soil01-040814  
**Collection Date:** 04/08/14 11:10 AM

**Work Order:** 1404532  
**Lab ID:** 1404532-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3541 / 4/11/14	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>1,100</b>		<b>49</b>	<b>mg/Kg-dry</b>	<b>10</b>	04/12/14 01:54 AM
<b>ORO (C28-C40)</b>	<b>670</b>		<b>49</b>	<b>mg/Kg-dry</b>	<b>10</b>	04/12/14 01:54 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>93.6</i>		<i>39-115</i>	<i>%REC</i>	<i>10</i>	04/12/14 01:54 AM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015</b>		Prep: SW5035 / 4/11/14	Analyst: <b>IT</b>
<b>GRO (C6-C10)</b>	<b>57</b>		<b>3.0</b>	<b>mg/Kg-dry</b>	<b>1</b>	04/11/14 04:09 PM
<i>Surr: Toluene-d8</i>	<i>108</i>		<i>50-150</i>	<i>%REC</i>	<i>1</i>	04/11/14 04:09 PM
<b>DENSITY - BULK</b>						
			<b>D5057-90</b>			Analyst: <b>MB</b>
<b>Density - Bulk, Dry</b>	<b>68</b>			<b>lbs/ft3</b>	<b>1</b>	04/16/14 02:00 PM
<b>Density - Bulk, Wet</b>	<b>73</b>			<b>lbs/ft3</b>	<b>1</b>	04/16/14 02:00 PM
<b>MOISTURE</b>						
			<b>A2540 G</b>			Analyst: <b>AT</b>
<b>Moisture</b>	<b>16</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	04/10/14 02:36 PM
<b>MOISTURE BY VOLUME</b>						
			<b>A2540 G</b>			Analyst: <b>AT</b>
<b>Moisture, by Volume</b>	<b>8.1</b>			<b>% of sample</b>	<b>1</b>	04/14/14 06:02 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Weston Solutions, Inc  
**Work Order:** 1404532  
**Project:** Whiting Crude Release

**QC BATCH REPORT**

Batch ID: **57444** Instrument ID **GC8** Method: **SW8015M**

<b>MBLK</b>		Sample ID: <b>DBLKS1-57444-57444</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>04/11/14 11:55 PM</b>		
Client ID:		Run ID: <b>GC8_140411A</b>				SeqNo: <b>2710165</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	4.2								
ORO (C28-C40)	ND	4.2								
Surr: 4-Terphenyl-d14	1.263	0	1.667	0	75.8	39-115	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-57444-57444</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>04/12/14 12:25 PM</b>		
Client ID:		Run ID: <b>GC8_140411A</b>				SeqNo: <b>2710168</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	157	4.2	166.7	0	94.2	49-124	0			
ORO (C28-C40)	161.3	4.2	166.7	0	96.8	60-130	0			
Surr: 4-Terphenyl-d14	1.453	0	1.667	0	87.2	39-115	0			

<b>MS</b>		Sample ID: <b>1404532-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>04/12/14 12:54 PM</b>		
Client ID: <b>WCR-Soil01-040814</b>		Run ID: <b>GC8_140411A</b>				SeqNo: <b>2710169</b>		Prep Date: <b>04/11/14</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1120	120	476.6	893	47.6	49-130	0			S
ORO (C28-C40)	969.5	120	476.6	561.7	85.6	60-130	0			
Surr: 4-Terphenyl-d14	3.489	0	4.766	0	73.2	39-115	0			

<b>MSD</b>		Sample ID: <b>1404532-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>04/12/14 01:24 AM</b>		
Client ID: <b>WCR-Soil01-040814</b>		Run ID: <b>GC8_140411A</b>				SeqNo: <b>2710170</b>		Prep Date: <b>04/11/14</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	1388	120	463.1	893	107	49-130	1120	21.4	30	
ORO (C28-C40)	1091	120	463.1	561.7	114	60-130	969.5	11.8	30	
Surr: 4-Terphenyl-d14	3.603	0	4.631	0	77.8	39-115	3.489	3.21	30	

The following samples were analyzed in this batch: 1404532-01A

**Client:** Weston Solutions, Inc  
**Work Order:** 1404532  
**Project:** Whiting Crude Release

## QC BATCH REPORT

Batch ID: **57453**      Instrument ID **GC9**      Method: **SW8015**

<b>MBLK</b>		Sample ID: <b>MBLK-57453-57453</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>04/11/14 02:48 PM</b>		
Client ID:		Run ID: <b>GC9_140411A</b>				SeqNo: <b>2708647</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
<i>Surr: Toluene-d8</i>	5222	0	5000	0	104	50-150	0			

<b>LCS</b>		Sample ID: <b>LCS-57453-57453</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>04/11/14 02:21 PM</b>		
Client ID:		Run ID: <b>GC9_140411A</b>				SeqNo: <b>2708645</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	499100	2,500	500000	0	99.8	70-130	0			
<i>Surr: Toluene-d8</i>	4442	0	5000	0	88.8	50-150	0			

<b>MS</b>		Sample ID: <b>1404555-22A MS</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>04/11/14 09:41 PM</b>		
Client ID:		Run ID: <b>GC9_140411A</b>				SeqNo: <b>2710400</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	442600	2,500	500000	0	88.5	70-130	0			
<i>Surr: Toluene-d8</i>	4364	0	5000	0	87.3	50-150	0			

<b>MSD</b>		Sample ID: <b>1404555-22A MSD</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>04/11/14 10:07 PM</b>		
Client ID:		Run ID: <b>GC9_140411A</b>				SeqNo: <b>2710401</b>		Prep Date: <b>04/11/14</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	510000	2,500	500000	0	102	70-130	442600	14.2	30	
<i>Surr: Toluene-d8</i>	5226	0	5000	0	105	50-150	4364	18	30	

The following samples were analyzed in this batch:

1404532-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Weston Solutions, Inc  
**Work Order:** 1404532  
**Project:** Whiting Crude Release

## QC BATCH REPORT

Batch ID: **R138766** Instrument ID **MOIST** Method: **A2540 G**

<b>MBLK</b>		Sample ID: <b>WBLKS-R138766</b>				Units: % of sample		Analysis Date: <b>04/10/14 02:36 PM</b>		
Client ID:		Run ID: <b>MOIST_140410E</b>				SeqNo: <b>2708414</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R138766</b>				Units: % of sample		Analysis Date: <b>04/10/14 02:36 PM</b>		
Client ID:		Run ID: <b>MOIST_140410E</b>				SeqNo: <b>2708413</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

<b>DUP</b>		Sample ID: <b>1404513-03A DUP</b>				Units: % of sample		Analysis Date: <b>04/10/14 02:36 PM</b>		
Client ID:		Run ID: <b>MOIST_140410E</b>				SeqNo: <b>2708395</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 12.61 0.050 0 0 0 0-0 13.14 4.12 20

<b>DUP</b>		Sample ID: <b>1404534-02B DUP</b>				Units: % of sample		Analysis Date: <b>04/10/14 02:36 PM</b>		
Client ID:		Run ID: <b>MOIST_140410E</b>				SeqNo: <b>2708401</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 14.95 0.050 0 0 0 0-0 14.98 0.2 20

The following samples were analyzed in this batch:

1404532-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



Client: Weston Solutions, Inc  
Work Order: 1404532  
Project: Whiting Crude Release

QC BATCH REPORT

Batch ID: R138992      Instrument ID WETCHEM      Method: A2540 G

DUP				Sample ID: 1404532-01A DUP				Units: % of sample			Analysis Date: 04/14/14 06:02 PM			
Client ID: WCR-Soil01-040814				Run ID: WETCHEM_140414R				SeqNo: 2714612			Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Moisture, by Volume		9.474	0	0	0	0		8.064	16.1	20				

The following samples were analyzed in this batch: 1404532-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Environmental**

Cincinnati, OH  
+1 513 733 5336

Everett, WA  
+1 425 356 2600

Fort Collins, CO  
+1 970 490 1511

Holland, MI  
+1 616 399 6070

# Chain of Custody Form

Page 1 of 1

COC ID: **85375**

Houston, TX  
+1 281 530 5656

Middletown, PA  
+1 717 944 5541

Spring City, PA  
+1 610 948 4903

Salt Lake City, UT  
+1 801 266 7700

South Charleston, WV  
+1 304 356 3168

York, PA  
+1 717 505 5280

ALS Project Manager: **TBS**

ALS Work Order #: **1404532**

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order		Project Name	WHITING CRUDE RELEASE	A	GRO, DRO, ORO											
Work Order		Project Number		B	VOLUMETRIC MOISTURE											
Company Name	Weston Solutions, Inc	Bill To Company	Weston Solutions, Inc	C	DRY BULK DENSITY											
Send Report To	Lisa Graczyk	Invoice Attn	Lisa Graczyk	D	WET BULK DENSITY											
Address	20 North Wacker Drive Suite 1210	Address	20 North Wacker Drive Suite 1210	E												
				F												
City/State/Zip	Chicago, IL 60606	City/State/Zip	Chicago, IL 60606	G												
Phone	(312) 424-3300	Phone	(312) 424-3300	H												
Fax	(312) 424-3330	Fax	(312) 424-3330	I												
e-Mail Address		e-Mail Address		J												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	WCR-SOIL01-040814	4/8/14	11:10	SOIL	NONE	2	X	X	X	X							
2	NO ADDITIONAL																
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign <b>JEFF BRYNARSKI</b>		Shipment Method <b>NA</b>		Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> Std 10 WK Days <input type="checkbox"/> 5 WK Days <input type="checkbox"/> Other <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour				Results Due Date:	
Relinquished by:	Date: 4/8/14	Time: 12:17	Received by:	Notes:					
Relinquished by:	Date: 4/8/14	Time: 1600	Received by (Laboratory):	Cooler ID					
Logged by (Laboratory):	Date: 4/9/14	Time: 1000	Checked by (Laboratory):	Cooler Temp. 24°C					
Preservative Key: 1-HCl   2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH   5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other   8-4°C   9-5035				QC Package: (Check One Box Below) <input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> Level IV 8WB46/CLP <input type="checkbox"/> Other					

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.  
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.  
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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From: (219) 405-5409  
Pete Wesson  
ALS Environmental  
3352 128th Ave

Origin ID: GRRRA

**FedEx**  
Express



J14101402070326

Ship Date: 08APR14  
ActWgt: 60.0 LB  
CAD: 2264840/INET3490

Dims: 14 X 26 X 15 IN

HOLLAND, MI 49424

SHIP TO: (616) 399-6070

BILL SENDER

**Sample Receiving**  
**ALS Environmental**  
**3352 128TH AVE**

**HOLLAND, MI 49424**

Delivery Address Bar Code



Ref #  
Invoice #  
PO #  
Dept #

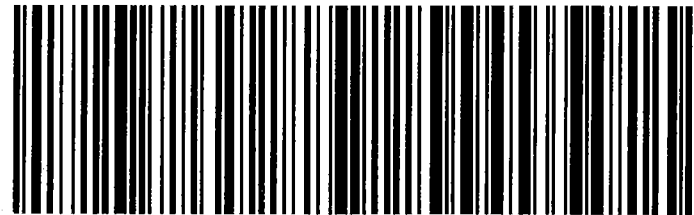
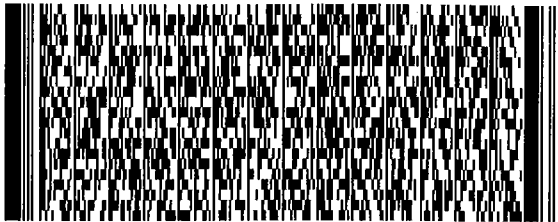
**WED - 09 APR AA**  
**STANDARD OVERNIGHT**

TRK# 7984 8398 9483

0201

**68 GRRRA**

**49424**  
MI-US  
**GRR**




522G178D9F220

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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Seal Broken By:	Date:	Time:	Name:	Company:		3352 128th Avenue Holland, Michigan 49424 Tel. +1 616 399 6070 Fax. +1 616 399 6185
<b>CUSTOMER SEAL</b>						

Sample Receipt Checklist

Client Name: **WESTON - CHI**

Date/Time Received: **09-Apr-14 09:30**

Work Order: **1404532**

Received by: **KRW**

Checklist completed by Diane Shaw 10-Apr-14  
eSignature Date

Reviewed by: Tom Bramish 10-Apr-14  
eSignature Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.4 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>4/10/2014 2:18:34 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: